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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/923,810	08/08/2001	Sok Joo Lee	8734.011.00- US	9929

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MCKENNA LONG & ALDRIDGE LLP
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WASHINGTON, DC 20006

EXAMINER

SEFER, AHMED N

ART UNIT	PAPER NUMBER
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2826

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/05/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 09/923,810	Applicant(s) LEE ET AL	
	Examiner A. Sefer	Art Unit 2826	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-6 and 8-20 is/are pending in the application.
 4a) Of the above claim(s) 8-14 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 and 15-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>11/29/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 11/16/2006 has been entered.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the alloy layer 50A which is made from an aluminum alloy and a metal layer can not be one and the same after the metal is removed and the two layers (an aluminum alloy and a metal layer) which are deposited on the first metal layer must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the

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renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "51A" has been used to designate both alloy layer which is made from an aluminum alloy and a metal layer and alloy layer after the metal is removed. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 1 and 15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not

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described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The application as originally filed does not specifically support the claim limitation “... the entire surface...” The specification merely discloses that a heat generated alloy layer on an upper surface of the first metal only (fig. 3 shows exposed side surfaces of the first metal).

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1 and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The recitation of claims 1 and 15 calling for, “a heat generated alloy layer on the entire surface of the first metal layer by heat generated ... wherein the second metal is removed so that the heat generated alloy layer is exposed to the entire surface ...” is not only vague but also confusing. It is not clear what is meant by “a heat generated ... by heat generated.” It is not clear whether it is the heat generated alloy layer or the first metal layer that is exposed.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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9. Claims 1-6, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn et al. ("Ahn") USPN 6,259,119 in view of Sakata et al. ("Sakata") USPN 6,252,247.

Ahn discloses (fig. 7 and col. 7, lines 49-67) a liquid crystal display device, wherein gate conductive lines are in direct contact with a transparent electrode 165, each of the gate conductive lines comprising a first metal layer including an aluminum-alloy 117a (**as in claim 2**) formed from a first metal; and an alloy layer 199 formed on the entire surface of the first metal and a second metal 117 including molybdenum (**as in claim 5**) on the first metal layer. Ahn's fig. 7b shows an exposed surface of the first metal layer directly connected to the transparent electrode which meets the recitation calling for "wherein the second metal is removed so that the alloy layer is exposed to the surface of a first metal layer and directly connected to the transparent electrode." However, Ahn does not specifically disclose an alloy layer on the entire surface of the first metal layer.

Sakata discloses in fig. 3 a liquid crystal display device, wherein gate conductive line is in direct contact with a transparent electrode 12, the gate conductive line comprising a first metal layer 2 and a second metal layer 3 on the entire surface of the first metal layer.

Since Ahn and Sakata are both from the same field of endeavor, LCD, Sakata's teachings would have been recognized in Ahn's pertinent art. Therefore, in view of Sakata teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Ahn's device by incorporating a second layer on the entire surface of the first layer. The motivation for doing so to provide a better contact resistivity as taught by Sakata.

Regarding claim 3, Sakata discloses (col. 5, lines 63-67) a first metal layer having a thickness within the recited range.

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Regarding claim 4, Ahn discloses an alloy layer formed from an alloy including a first metal and a second metal deposited onto the first metal layer.

As to the heat generated alloy layer or subsequent removal of the second metal recited in claims 1 and 4 respectively, they read to a process and "product by process" claims are directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685 and In re Thorpe, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long as the claims are directed to a device. Further, note that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

As for claim 6, Ahn discloses said gate conductive line including one of a gate pad 117, gate line 115 and a gate electrode 113.

10. Claims 15-20, as understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over Ahn in view of Sakata.

Ahn discloses (fig. 7 and col. 7, lines 49-67) a liquid crystal display device, comprising: a substrate 111; a gate electrode 113 disposed on the substrate; a gate pad 117 disposed on the substrate; an insulating film 119 disposed on the gate electrode and the gate pad; an active layer 121 disposed on the insulating film above the gate electrode; an ohmic contact layer 123 disposed on portions of the active layer; a source electrode 133 and a drain electrode 143 disposed on the ohmic contact layer; a passivation layer 139 disposed on the source and drain electrodes or disposed on the insulating layer (**as in claim 19**), covering side surfaces of the source and drain electrodes (**as in claim 18**) or contacting a portion of the active layer between the source and drain electrodes (**as in claim 20**); a pixel electrode 153 disposed on the

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passivation layer and contacting the drain electrode; and a transparent electrode 165 disposed on the passivation layer or disposed within a via formed through the passivation layer and insulating film (**as in claim 17**) contacting the gate pad or a second layer of the gate pad (**as in claim 16**), wherein the gate electrode and the gate pad both include a first layer formed of a first metal 117a and a second layer 199 formed on the surface of the first layer and a second metal 117 on the first metal. Ahn's fig. 7b shows an exposed surface of the first metal layer directly connected to the transparent electrode which meets the recitation calling for "wherein the second metal is removed so that the alloy layer is exposed to the surface of a first metal layer and directly connected to the transparent electrode." However, Ahn does not specifically disclose an alloy layer on the entire surface of the first metal layer.

Sakata discloses in fig. 3 a liquid crystal display device, wherein gate conductive line is in direct contact with a transparent electrode 12, the gate conductive line comprising a first metal layer 2 and a second metal layer 3 on the entire surface of the first metal layer.

Since Ahn and Sakata are both from the same field of endeavor, LCD, Sakata's teachings would have been recognized in Ahn's pertinent art. Therefore, in view of Sakata teachings, one having an ordinary skill in the art at the time the invention was made would be motivated to modify Ahn's device by incorporating a second layer on the entire surface of the first layer. The motivation for doing so to provide a better contact resistivity as taught by Sakata.

As to the heat generated alloy recited in claim 15, it reads to a process and "product by process" claims are directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 15 at 17 (footnote 3). See also In re Brown, 173 USPQ 685 and In re Thorpe, 227 USPQ 964, 966. Therefore, the way the product was made does not carry any patentable weight as long

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as the claims are directed to a device. Further, note that the applicant has the burden of proof in such cases, as the above case law makes clear. Also see MPEP 2113.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to A. Sefer whose telephone number is (571) 272-1921.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nathan Flynn can be reached on (571) 272-1915.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ANS
December 22, 2006


A. Sefer
Patent Examiner
Art Unit 2826